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ORBIT 4

Letter to the editor

Since humor is one of the principal graces of the human intellect, I assume David Bakan's article in Preliminary Issue No. 2 of *Orbit* was the classic humorous form of *reductio ad absurdum*. In the awesome possibility that it wasn't, I offer the following:

A Psychologist's Nightmare

Psychology professor Herman Schliegal walked blissfully down a quiet street near the campus.

A group of carefree youths greeted him as a kindred spirit. They had just completed a successful demonstration against grades and examinations. After a beautiful, prolonged childhood in which they had never been required to meet any standard save their own judgment, they had come to university where an English professor had the gall to demand that they read Shakespeare or some such irrelevant bilge. Only once in the past had a teacher tried to curb their free development. She had asked them to read certain musty volumes as a preparation for creative writing and self-expression. This had encouraged irresponsibility and amorality, for they had read the Classics Illustrated versions, and those who were not caught almost became cynics when those who were got 'F' in English. The principal had soon put an end to that nonsense. Now at university they were asked to meet standards, albeit miserably low ones. No wonder they rioted! A stupid over-zealous policeman had arrested a few of their number, but the judge dismissed the charge, noting that 'Punishment tends to stamp out independence of thought and to encourage authoritarianism — that is, the attitude that it is proper to coerce those who are weaker while submitting to those who are stronger.' A science professor whose life's work had been destroyed by the young heroes observed that that was exactly what the judge was doing, but of course no one listened to him.

Herman walked on, breathing in the spring air still polluted by smoke from the riot, when suddenly a car hurtled through a red light and struck him down.

'The light was red,' croaked Herman.

'Obedience, which used to be considered a cardinal virtue, is no longer considered a virtue at all,' said the driver.

Luckily they were just in front of a hospital and Herman was able to crawl to the emergency entrance.

'Please take me up to the doctor,' he begged.

The receptionist smiled pityingly, for the elevator operators were all out to coffee. 'They understand what the circumstances and the values of our society require,' she said. 'Productivity is no longer a value.'

Painfully, Herman, bleeding from his many wounds, dragged his broken limbs up several flights of stairs to the operating room, where he met a doctor whose clear eyes proclaimed that he had never been subjected to fear, tension, and grimness in his studies.

'Will you help me?' gasped Herman.

'Of course,' said the doctor. 'I am a professional person. My first loyalty and principal obligation are to you, my client.'

'But you do know medicine — anatomy, physiology?'

'Are you suggesting that my medical school was curriculum-centered rather than pupil-centered?' the doctor asked stiffly. He lifted Herman onto the operating table and observed, 'My problem-solving orientation suggests that one possible course of action is to stop the bleeding. Nurse, hand me the forceps.'

'Oh no!' said the nurse. 'A democracy is, by definition, a condition in which all men rule. I am exercising my use of freedom, and so must everyone here.' As a result, the nurses, the nursing assistants, the orderlies, and a man who had come to repair a leaky faucet all voted, and by a narrow margin it was decided the nurse should not hand the forceps. The doctor, using ingenuity and creative thinking, tied the severed blood vessels in a granny knot.

'I wonder if you have a ruptured spleen,' he mused, and cut open Herman's lower abdomen. 'Hmm. It doesn't seem to be down here.'

'You mean you don't know where it is?' protested Herman.

'You don't think I could learn anything about your spleen from an anatomy book or a professor do you? I must learn by experience and discovery rather than by authority. Eventually I'm sure to find your spleen, and then I'll really know where it is, because I discovered it for myself.'

'But how did you graduate from medical school?' asked Herman through his death rattle.

'My professors didn't believe in punishment through the less than excellent grade. They didn't want to be gatekeepers using the scourge of marks to bar me from career, income, prestige, and the like.'

Suddenly there was a tremendous rumbling as the building shook and heaved. The architects and engineers who had built the hospital had given their clients just what they wanted — a good cheap structure that would look impressive as a monument to the administrators who ordered it. Of course they had never had to pass examinations testing their knowledge of stresses and such things. The building collapsed.

Herman woke up.

At this point, will we?

Rita Ubriaco,
Thunder Bay

Forthcoming Events

October 19-23
'Education and the Environment in the Americas'—a hemispheric conference sponsored by the Organization of American States and the American Association of Colleges for Teacher Education. To be held in Washington, D.C. For further information write to Dr. Frank Klassen, Associate Director, American Association of Colleges for Teacher Education, 1 Dupont Circle, Washington, D.C.

October 26
'The Use of Teacher Selected Simulation Materials'—a one-day institute sponsored by the Department of Educational Administration, OISE, and The University Council for Educational Administration.

5th Anniversary Lecture Series
To be held in Auditorium of OISE, 252 Bloor Street West, Toronto, at 8 p.m. on the dates listed:

October 7/ Lecture 1
'Telling It Like It Ain't.'
Neil Postman, New York University.
October 14/ Lecture 2
'L'influence des Etudes Piagetiennes sur les Systèmes d'Education.'
Vinh-Bang, Geneva, Switzerland.
October 22/ Lecture 3
'Alternatives Through Computers.'
Patrick Suppes, School of Education, Stanford University.
November 4/ Lecture 4
'The Definition of a University.'
Northrop Frye, University of Toronto.
November 18/ Lecture 5
'Challenges and Perils for Educators' (Bilingualism).
Keith Spicer, Commissioner of Official Languages, Ottawa.

'The Teacher as a Group Leader'
Sponsored by OISE. To be held at OISE, 252 Bloor Street West, Toronto, starting at 9 a.m. on the dates listed.
October 17/Session 1; October 20/Session 2; October 22/Session 3; October 29/Session 4

November 17-21
'Continuing Education in the Professions'—a workshop sponsored by the Department of Adult Education, OISE.
For OISE-sponsored function, contact Conference Office, OISE.

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Although *Orbit* is not written for students, we foresee no harm if copies should fall into their hands—on the contrary!

Content: *Orbit* features information about educational research and development and, in addition to discussing work carried out by OISE and schools across Ontario, draws on material from other Canadian provinces and other countries. Les articles qui intéressent surtout les francophones paraissent en français.

Contributions: We should be glad to receive from readers articles about educational practice, criticisms of past issues of *Orbit*, and suggestions for future issues. Before submitting full-length articles, for which an honorarium will normally be paid, a preliminary letter should be sent to the editor.

Cover Photograph: Pamela Harris-McLeod

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Play is a natural diversion of man and beast. It has long existed upon the Earth, for it comes instinctively to living creatures and is not related to any particular stage of civilization or view of the universe. Huizinga captured something of this sense of timelessness in his statement in *Homo Ludens* that, 'Play is older than culture, for culture . . . presupposes human society, and animals have not waited for man to teach them their playing.'[1]

Despite the attention paid to it by psychologists, physiologists, sociologists, philosophers, and educators, play is still an ill-defined concept in need of analysis and explanation. The purpose of this brief review is to examine the function of play as an educative technique.

Play is primarily fun — and fun knows no logical interpretation; it is spontaneous and defies rationalization; it is outside the sphere of morals and is not subject to judgments of vice and virtue; it is not always fully distinguishable from work and cannot be regarded as the antithesis of work; it is essentially a voluntary activity. Play is a non-verbal language capable of expressing emotions, communicating ideas, and establishing contact with others. It wears many faces and may achieve great complexity. It provides techniques for teaching and situations for learning. Play has long been acknowledged as a formative influence. The most dramatic recognition of this came not from an educator but from a soldier. In the words attributed to Arthur Wellesley, Duke of Wellington, 'The Battle of Waterloo was won in the playing fields of Eton.'

PLAY IN EDUCATION

Zoltan B. Dienes
Department of Computer Applications
OISE

Photograph: R. Taschereau, Media Services, OISE

The Historical Background of Play in Education

In the present century, Maria Montessori and her followers enhanced the stature of educational play. Significant as their contributions were, they must be regarded as developmental rather than innovative, for play has served an instructional function since preliterate times. Plato established its place in educational philosophy in the fifth century B.C. with his contention that early education should take the form of a 'sort of amusement' that would tend to reveal the child's natural bent. His views on the instructional value of play are further illustrated by his suggestion that the training of artisans be accomplished by having children watch their parents at work, serve as helpers, and play with 'mimic tools.' Aristotle, influenced by this philosophy, supported the concept of activity in education, and in the first century A.D., Quintilian urged acceptance of educational play. The Renaissance saw the idea again reach prominence under the direction of Vittorino da Feltre, Roger Ascham, and Richard Mulcaster. John Locke supported it in the seventeenth century and recorded his views in *Some Thoughts concerning Education.*

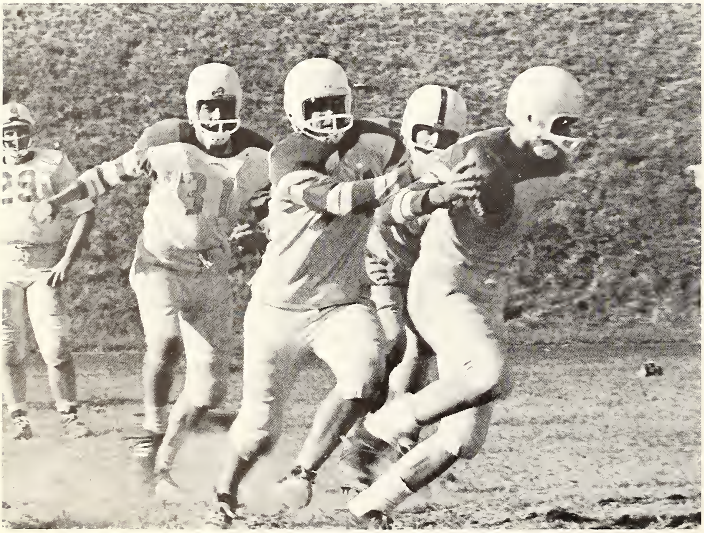
Rousseau and his followers gave great impetus to the movement toward educational play. Rousseau envisaged play as the basis of a natural, spontaneous system that would supplant the formal structure of education. In pursuit of this goal, Basedow devised instructional games and demonstrated their effectiveness by using them successfully for several years in a teaching situation patterned after that described in Rousseau's *Emile.* The strongest influence, however, stems from Froebel, who regarded educational play as a means of developing individual potential. His games were designed to develop personality and independence of mind; kindergarten children and mothers' clubs the world over responded enthusiastically to them.

More recently, Jean Piaget supported the philosophy of education through play. He believed that play reveals the evolution of thought in infancy and early childhood and used it as a means of tracing the development of the ability to adapt to circumstance and to assimilate new knowledge. In *Play, Dreams and Imitation in Childhood,* Piaget said of play, 'It has something of the creative imagination which will be the motor of all future thought and even of reason.'[2]

Modern Views and Research on the Educational Significance and Value of Play

Today, perhaps more than at any time since Froebel earned public acclaim, the educational significance of play is acknowledged. Some years ago, in a statement broadly representative of current thought, Dean Neville Scarfe of the University of British Columbia described creative play as 'a complete educational act.'[3] Through it the child is seen to be pursuing a program of self-discovery, experimentation, and observation — in short, to be learning by experience. Psychologists have learned that children withdraw naturally from the threatening complexities of adult society into the world of play where they can learn safely, through trial and error, their own means of coping with the real world. Imitative play, then, appears to be in large measure the child's response to an instinctive need to 'practice' the experiences of adult life. If this interpretation is valid, psychological findings that play in childhood is essential to the development of competence in adulthood emerge as a natural sequitur.

Research conducted in real-life situations presents a strong case in support of play in education. A child's spontaneous play appears to be an ideal technique for learning, and it allows others to evaluate (through observation) the child's emotional adjustment and intellectual and social competence. Play, translated into games designed to accomplish specific instructional goals, has worked its way into the formal learning situation with interesting results. Researchers report that educational games stimulate student involvement, lengthen the attention span, improve student behavior, promote willingness on the part of students to accept responsibility for their own actions (since immediate feedback results, and the games are self-judging), and improve the rapport between students and teachers by removing from the latter the onus for reward or punishment. The versatility of games is such as to ensure the involve-



Photographs: Ontario Department of Education ment of all students — above average, normal, and slow learners — and to promote social interaction among diverse groups. Research indicates further that, in appropriate areas of instruction, games using verbal and number cues produce more significant results than do conventional teaching methods, while games involving the exercise of self-control tend to improve social behavior.

Hindrances to the Implementation of Play in the Formal Educational Structure

Acceptance of play as a valid educational technique faces, by and large, the same impediments that traditionally retard educational change. Chief among these are the shortage of skilled teachers, the false impressions created by misuse of procedures by the inept and uninformed, the reluctance of skilled teachers and teacher educators to be identified with controversial methods, the lack of sophisticated means of evaluation, and the ever-present fear of change. In this case, another inhibiting factor is the long-standing puritan ethic that esteems the value of work and rejects play as sinful.

The major deterrent, however, may well be the nature of play itself — an activity distinguished by spontaneity. Play robbed of its spontaneous origin is no longer play, but at best a weak and lusterless imitation produced by the adult mind. The references in current literature to 'self-initiated' and 'adult prescribed' activity are evidence of adult inability to leave children's play alone, or in fact, to let play remain play.

Although writings suggest that educational play has earned acceptance as a valid subject for serious study, its practical application still requires extensive testing. Under such circumstances, conclusive statements are unwarranted, but it is safe to state that better understanding of the nature and uses of play will assist teachers in establishing communication and promoting social, cognitive, and emotional development. Present-day problems arising from the diminishing distance and increasing contact among varied races and cultures accentuate man's need to become knowledgeable in the effective use of all communications media. Play possesses qualities that are very apt in this context. It affords communication without words and is an international language; it springs from no cultural or philosophic source and is free of related restrictions; it does not depend on instruction and is an instinctive diversion of the whole human family. Play is not suggested as a panacea for educational ills but merely as another technique for educators to apply in meeting the challenges before them. Play — even educational play — may seem an unduly simple means of attacking any of the problems of education in this late-twentieth-century world, but its history is too long and many of its proponents are too distinguished to permit summary dismissal of its potential.

Teachers who wish to determine the types of educational games available and their sources of supply will find the following publication valuable:
Games for School Use
by Richard Zieler
An annotated list of educational games for use in elementary and secondary schools. (Revised March 1969 by Irene Strum.) Price — $3.

Available from:
Center for Educational Services and Research
Board of Cooperative Educational Services
First Supervisory District, Westchester County
845 Fox Meadow Road, Yorktown Heights, New York 10598, U.S.A.

Contents:
a list of games with a supplement updating it to 1969
a bibliography on games
an index of publishers
an index of games by publishers
an index of games

Notes

1. Johan Huizinga, *Homo Ludens* (Boston: Beacon Press, 1955), p. 1.
2. Jean Piaget, *Play, Dreams and Imitation in Childhood* (New York: W. W. Norton, 1962), p. 162.
3. N. V. Scarfe, 'Understanding Children's Play,' *Journal of Education* (B. C.), 12 (January 1966), 21.

Photographs: Pamela Harris-McLeod

Dennis M. Roberts/ Department of Measurement and Evaluation/OISE

University Admissions Testing

Are Changes Needed in the Philosophy of Use?

In 1964, the Grade 13 Study Committee recommended that admission to university from Ontario high schools be based on the following criteria: the student's school record to the end of grade 12, his standing in his matriculation year, and his standing on a proposed set of aptitude and achievement tests. The Ontario Tests for Admission to College and University, which were subsequently developed at OISE to provide for this third criterion, include one general aptitude test (the Canadian Scholastic Aptitude Test), and achievement tests in the English language, mathematics, and physics.

In 1966/67 and 1967/68, all four tests were administered by OISE in Ontario. In 1968/69, the general aptitude and English language achievement tests were administered by the Service for Admission to College and University.

Bearing in mind the flexible curricula now emerging in schools, it is perhaps time to re-examine the role of tests in the admission process and to discuss whether the present tests could be used more effectively.

Content of Aptitude and Achievement Tests

In deciding on the admission of a student to a university, two major questions must be answered. First, what is the student's overall chance of success (i.e., passing and graduating) in the university? The student should have a reasonable chance for success, since failure is costly both to the individual, in a psychological sense, and to the institution, in an economic sense. Second, what type of program will the student enter once he has been admitted to the university? Obviously, guidance to the student in selecting courses that are useful and interesting to him and of a level of difficulty commensurate with his background is of considerable importance. In considering the information that will help the university to answer the above questions, one should look first at the content found in aptitude and achievement tests, then at the guidance each can offer.

Aptitude tests, especially such tests as the Canadian Scholastic Aptitude Test (CSAT), measure general ability. They cover a wide range of material and draw upon verbal and mathematical skills that should have been developed early in the student's secondary school career. In constructing the mathematical section of CSAT, only mathematical concepts normally presented before grade 11 were included. To ensure this practice continues, an item review committee familiar with the relevant courses of study has been set up. This means that general aptitude tests (at least CSAT and similar instruments) are not tied to the secondary school curriculum in the student's recent past, and is one reason why students find it very difficult either to cram for general aptitude tests or to receive coaching on them. Several publications that purport to improve scores on the tests through practice are sold by various bookstores and are widely advertised as the dates for the tests approach. However, there is little evidence to show that these publications are of any benefit to prospective examinees. In fact, students should be discouraged from purchasing these 'cram' guides since the test agencies themselves publish and distribute extensive handbooks to the students, including practice items and descriptions of tests.

By contrast, achievement tests measure knowledge gained in fairly specific areas of study. The Ontario Mathematics Achievement Test (OMAT), for example, samples mathematics content that is normally presented in upper secondary school. About 50% is based on the grade 13 curriculum. The physics and other achievement tests are similarly based. Therefore, in this type of test, the student's performance depends primarily on what specific information he has learned in school during or near his matriculation year, and this will usually depend on the kind of courses he has taken.

Guidance Functions of Aptitude and Achievement Tests

Aptitude and achievement tests differ in the kind of guidance they provide. Aptitude tests, being general measures of ability, can be used to predict the student's chances of success in various universities and programs, whereas achievement tests are better suited to helping the student choose specific courses within the university.

One way to utilize aptitude test information is by constructing expectancy tables. These can be prepared in a variety of ways, but a simple one is shown in the accompanying table. On the *x* axis is plotted the range of scores possible. On the *y* axis are the final grades the students may obtain at the end of their first year of university. The tallies in the upper left-hand corner of each square on the grid represent the number of students who received a certain aptitude test score *and* a particular grade at the end of their first year. For example, out of fifteen students who received aptitude test scores between

600 and 699, six had B standing. The number in the lower right-hand corner of each square simply converts the six out of fifteen to a percentage (40%). This type of information enables the student to see his chances of obtaining a certain grade, given his performance level on the aptitude test. The advantage of using the expectancy table approach is that, after some basic correlational research is completed either by the local school system or the testing agency, tables can be constructed for different universities and possibly for different broad programs within the universities. These can then be kept on file for the student to inspect and discuss with his counselor.

The major guidance value of achievement tests is placement of the student within the university. In this case, expectancy tables can be constructed making the variables achievement test scores and grades obtained in specific courses. Achievement test data place the student in a better position to decide which level of a particular course will be appropriate and enable him to assess more realistically whether his skills are adequate for entry into various courses. The information from well-constructed achievement tests can facilitate the planning process by indicating where the student is *currently* at, while allowing the student and his teachers flexibility of curriculum planning in secondary school.

For example, if two students have similar overall averages in secondary school, similar CSAT scores but widely differing OMAT scores, it would be illogical to suggest that both enroll in the same university mathematics course — especially if it is directly dependent on skills measured by the achievement test. If both did enroll, it is likely that either the student with the low score would find the material too difficult or the student with the high score would find the material too easy, and hence become bored. Achievement test data can contribute by helping the student to make realistic decisions about his university work. At the same time, it allows the university to plan its facilities better.

There are two advantages to switching the philosophy behind the use of achievement tests from admission to placement decisions. First, it would remove a substantial amount of the pressure that is still on teachers to cover certain material. As it stands now, the achievement tests have no bearing on the grade 13 marks students finally obtain. But there is still the feeling that students have to be prepared for the tests, just as they were for grade 13 departmentals, since the scores influence university admission. (See R. E. Traub, 'Reflections on Some Popular Criticisms of University Entrance Examinations,' *The OSSTF Bulletin,* 49 [March 1969], 93-100). Since this is one reason why the grade 13 departmentals were abolished, the use of achievement tests as criteria for university admission has simply replaced one evil with another. If the achievement tests were used for placement rather than admission, the teacher could concentrate on those concepts he believes to be most important without feeling that he might be keeping certain students out of university by failing to focus on topics that will be on the tests.

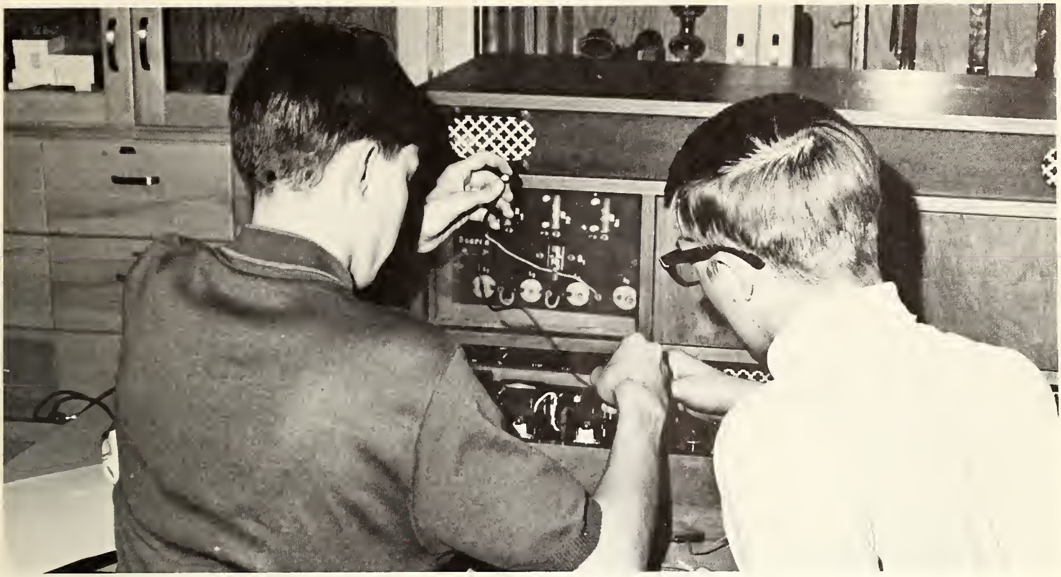
Second, it would reinforce the idea that university-level achievement test data can be used in a very meaningful way — a way that has not been used previously in Ontario. Through the use of the data for admissions, the main value of the information — helping the student plan a program that maximizes his own learning experiences within the university—has been lost.

Example of an Expectancy Table

Average grade at end of first year university (y)							Total students
A				|| 8%	卌 33%	|| 40%	9
B		|| 14%	卌 卌 28%	卌 卌 卌 60%	卌 | 40%	|| 40%	35
C	| 20%	卌 33%	卌 卌 卌 44%	卌 20%	||| 20%	| 20%	30
D	||| 60%	卌 33%	卌 卌 28%	||| 12%	| 7%		22
F	| 20%	||| 20%					4
Aptitude test score (x)	200-299	300-399	400-499	500-599	600-699	700-799	
Total students	5	15	35	25	15	5	**100**

Improving Small Schools and Other Programs of the Northwest Regional Educational Laboratory in Portland, Oregon

Jerry Kirkpatrick
Northwest Regional Educational
Laboratory



Two students in rural Chouteau County, Montana, study concepts in basic electricity using Laboratory-developed self-instructional units. The students are wiring a circuit board according to the directions on the screen before them. The basic electricity units are the first of several instructional systems to be made available for general use in schools following development and testing in small high schools.

In 1965, a number of regional and educational laboratories were established across the United States through an Act of Congress. One of these, the Northwest Laboratory in Portland, was given responsibility for working with schools, colleges, and other agencies in Alaska, Idaho, Montana, Oregon, and Washington in the development of products for improving elementary and secondary school education.

Working closely with state departments of education and educational associations, the laboratory began by making a thorough study of the educational needs of the region. As a result of its findings, the laboratory instituted a number of special projects, but the major part of its activity has gone into developing products and courses for three main programs: improving small schools, which is the focus of this article; improving teacher competencies; and an 'intercultural' program for Indians, Eskimos, and other ethnic groups living in the region.

Teachers and administrators have participated actively throughout the entire development process, which involves a nine-stage cycle for creating, testing, and revising both prototype and interim products. Most of these products will be of educational value not only for the northwest region for which they were originally designed but also for other regions in the United States and Canada.

The Small Schools Program

The small schools program grew out of the fact that roughly a third of all the students in the northwest region live in isolated communities and attend schools that are limited in the kinds of specialized instruction they can offer. Many of the students will ultimately move to cities, and as things presently stand, they will be at a disadvantage when it comes to finding jobs.

Each of the following sections describes one of the components of the Northwest Laboratory's program for improving small schools. The first three are designed to enrich the curriculum in small schools by developing instructional systems in a wide range of subjects. Most of these systems permit self-instruction and are based on programmed learning. The fourth program component is concerned with creating a community environment receptive to the adoption of new materials and methods in rural schools.

Instructional Systems for High School Youth

The teams in this program component include a systems designer, an academic specialist, and a high school teacher, who work with consultants from industry to develop multimedia systems for self-instruction.

The idea is that the student can work through a series of learning sequences in the instructional system at his own pace. As students direct much of their own work, the teachers are relieved of routine drill and have more time for work with individuals and groups in planning instructional improvements. The instructional systems also help to answer such a problem as lack of teachers in specialized subject areas.

Below are the instructional systems that will be ready for general use in 1970:
Welding I and II (8 units)
8 sound and color cartridge films
8 printed, programmed student guides
Models for comparing welding techniques
Welding equipment
Plastics (4 units)
4 sound and color cartridge films
4 printed, programmed student guides
Plastic materials and molds
Electricity-Electronics (6 units)
6 filmstrip-audiotape cartridges
Student workbooks
Circuit board
Speech (8 units)
8 sound and color cartridge films
Student guides
Instructor guide

Some other instructional systems that will be ready for general use in 1972 are:
Advanced Mathematics (full year's course)
27 filmstrip-audiotape cartridges
Student workbooks

Instructor guide
Physical Science (full year's course)
52 filmstrip-audiotape cartridges
Student workbooks
Instructor guide
Equipment for experiments
Spanish (full year's course)
50 filmstrip-audiotape cartridges
Student workbooks
Instructor guide
Welding III and IV (5 units)
5 sound and color cartridge films
5 printed, programmed student guides

Computer-Assisted Instruction

The laboratory's first effort in this area was to develop computer-based instructional units in vocational and advanced mathematics in cooperation with Washington State University, and to test a system for making the instruction available in small, remote schools. The system envisaged would make use of ordinary telephone lines to connect teletype terminals in distant schools with a central computer, which might be located hundreds of miles away.

In the process of developing this program, it became evident that materials were needed to orient and train teachers and administrators in the uses of computers before widespread use of computer-based instruction could become a reality. As a result, the laboratory launched a major project called REACT (Relevant Educational Applications of Computer Technology). During the first year of this project, 70 instructional units were prepared to familiarize teachers and administrators with teletypewriter procedures, fiscal accounting, modular scheduling, time sharing, programming, and so forth, as well as with their application in specific academic areas. In the forthcoming year, other units will be prepared for use with students. These units will be tested in schools in the Portland area and revised to be made available to other schools.

Instructional Systems for Elementary Schools

The laboratory staff, teachers and administrators at field-test schools, and consultants from state departments of education are cooperating in evaluating the adaptation of existing instructional systems generated by other agencies — research and development centers, universities, and industries — for use in small schools, initiating the development of new systems to fill gaps in the rural program, and field testing the new and adapted instructional programs in rural elementary schools to evaluate their effectiveness.

One of the systems currently being adapted for use in rural elementary schools is 'Patterns in Arithmetic,' which was developed by the Research and Development Center for Cognitive Learning at the University of Wisconsin. The goal is to prepare a comprehensive multimedia mathematics program especially suited for grades 1 to 6 in small schools. The instructional program for grades 1 to 4 will be ready for general use in 1970; for grades 5 and 6, in 1971.
Materials include:
336 fifteen-minute lessons on videotape to be played by the teacher in the classroom
A teacher's manual for each grade
A student's workbook for each grade

Change-Process Model

For new and more effective products to be adopted and used effectively, there must be leadership in rural communities to organize, plan, and implement improvements in the schools. Since lack of community understanding and of preparation of the school staff have been identified as major hindrances to the acceptance of innovation and change, the laboratory has undertaken to develop materials and procedures for training leaders in rural communities so that they can take steps to improve educational practices in their schools.

A student at Glennallen, Alaska, watches a cartridge sound-film unit in the self-instructional welding system. By watching the demonstration films and then trying the demonstrated skill for himself, the student learns to weld.

The types of materials and procedures necessary were first explored by working with people in the community of Seldovia, Alaska. Subsequently, some materials and procedures were tried at Inchelium, Washington. Now the laboratory staff is doing further development and testing at Nulato, Alaska. The materials and procedures that prove effective will then be integrated into a total change-process strategy. All told, the testing and development of the model should take roughly two years. The ultimate educational outcome will be a school program that has been planned by local groups, is accepted by members of the community, and is relevant to the local educational needs of the students.

At present, seven sets of materials and procedures intended for sequential use in effecting change are being developed and tested:
Materials and procedures for needs assessment in rural settings
Materials and procedures for a skill building workshop
Materials and procedures to identify options for learning
Materials and guidelines for conducting local awareness sessions
Materials and procedures for the installation of options
Materials for training for evaluation
Procedures for recycling

Other Programs of the Northwest Laboratory

Program for Improving Teacher Competencies

This program includes the development of materials, workshops, and courses that will train teachers and school administrators in the following:
Inquiry development —
identifying and performing 27 behaviors that will encourage students to develop inquiring minds.
(Ready for general use in 1973)
Development of higher-level thinking abilities —
increasing students' ability to solve problems by categorizing facts, drawing generalizations from them, and applying them to unknown situations.
(Ready for general use in 1970)
Cross-age peer help —
encouraging students to help each other learn.
(Ready for general use in 1973)
Training education consultants —
conducting training exercises, and developing consulting and organizational development skills.
(Ready for general use in 1974)
Systematic and objective analysis of instruction —
interpersonal relationships, supervisory systems, and teaching strategies.
(Ready for general use in 1970)

More than 300 lessons have been videotaped to help students in grades 1-6 learn basic concepts in modern math. The NWREL program has determined the most effective ways of using the materials in rural classrooms and has studied the achievement of students.

Utilization of research in problem solving—
the use of 9 techniques for defining, analyzing, and solving problems.
(Ready for general use in 1971)

Increasing achievement motivation —
motivating students to do things better, faster, and more efficiently.
(Ready for general use in 1973)

Systems technology —
the uses of systems analysis and synthesizing skills in formulating classroom objectives and managing instruction.
(Ready for general use in 1971)

Interpersonal communications —
increasing perceptual, listening, and conversational abilities.
(Ready for general use in 1972)

Interpersonal decision making —
enlarging abilities for group decision making.
(Ready for general use in 1972)

Question strategies leading to productive thinking —
understanding and using various methods of asking questions in the classroom.
(Ready for general use in 1970)

Pupil-teacher interaction —
developing productive thinking through inquiry development, development of higher level thinking abilities and question strategies.
(Ready for general use in 1971)

Analysis of pupil-teacher interaction —
analyzing how various techniques of teaching affect learning.
(Ready for general use in 1970)

Program for Improving Intercultural Education

Individualized motor-perceptual skills (IMPS) —
32 activities for developing learning readiness skills of kindergarten children.
(Ready for general use in 1970)

Reader for culturally different children —
The Alaskan Readers represent a comprehensive language development program for grades 1 to 3. Each of the 12 levels includes a student workbook, storybook, and teacher manual. Supplementary materials include an Alaskan Holiday Book and a resource book of poems, songs, games, and other activities.
(Ready for general use in 1971)

Coordinated helps in language development (CHILD) —
50 activities for developing the skills of kindergarten children in expressing themselves.
(Ready for general use in 1970)

Prevocational skills —
more than 800 curriculum modules to increase ninth and tenth grade students' skills in language arts and social studies.
(Ready for general use in 1970)

Planning capabilities —
an instructional program for developing skills in identifying resources, using relevant knowledge, generating and reducing data, and evaluating results in order to facilitate effective planning in the improvement of education for culturally different children.
(Ready for general use in 1972)

Needs assessment —
an instructional program for learning skills for collecting, interpreting, and applying data to assess current and projected needs in the improvement of education for culturally different children.
(Ready for general use in 1972)

Skilled collaboration —
an instructional program for learning skills such as communication, negotiation, and conflict resolution which facilitate fruitful collaboration in the improvement of education for culturally different children.
(Ready for general use in 1972)

Increasing effectiveness of specialized personnel —
a model program for improving the services of such specialized personnel as speech therapists, reading clinicians, and social workers. It includes a computerized student information system.
(Ready for general use in 1970)

Special Projects

Relevant educational applications of computer technology —
the development of three instructional systems, comprised of 70 units to date, to familiarize school administrators, teachers, and students with the uses of computers.

Rural shared services —
the provision of information on planning and implementing shared service projects to local school administrators and boards.

Department of Defense instructional materials —
the preparation of indexes and accompanying materials — 'packages' of films, transparencies, manuals, and charts — appropriate for various vocational courses.

Information on urban educational planning —
the exploration of a computer-based regional information system that will provide data necessary for effective long-range educational planning.

Dissemination of educational innovations —
the development of an instructional system for learning a problem-solving approach to dissemination.

Guam educational project —
the adaptation of instructional systems and the use of training programs to provide educators in Guam with new teaching skills and to train educators and community leaders in assessing needs and long-term planning.

For specific inquiries about any of the activities of the Northwest Regional Educational Laboratory, write to:
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710 S. W. Second Avenue
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THE NOISE OF D

B. P. A. Ertis
Corsair Public School, Cooksville

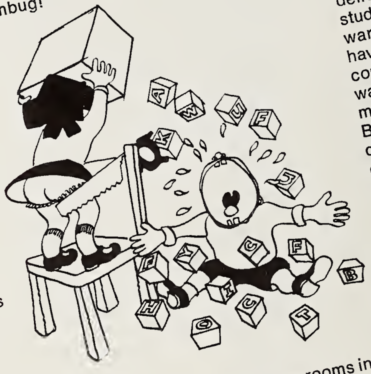
The noise of discovery — too often have I heard these words used as a justification for lax discipline. What the adherents of the philosophy don't seem to realize is that the noise has displaced the discovery. Children discover very quickly that it is far easier to create noise than to pursue discovery.

How much noise does one have to make in paging through a reference book? How much noise does one have to make in taking wooden blocks from a box? How much noise is necessary during effective group discussion? How necessary is oral noise during a physical education lesson?

I'm game. Let's try out some noise.

As you page through a reference book, drop it a few times, preferably on Sue's sore toe. While you're about it, discover that more noise results from flipping pages than from leafing through them. Discover, too, that the sudden shock of physical pain lends a certain resounding urgency to Sue's involvement in the situation. Instead of removing the wooden blocks one by one, discover how much more fun it is to dump them all out at once. Experiment with free group discussion and see what happens when Bill discovers that waiting his turn to speak causes him to lose his train of thought and that voicing ideas as they come to him is his only salvation.

Lots of noise. Lots of discovery. Bah! Humbug!



Why is it that when we visit classrooms in which order and self-discipline prevail, we are more impressed by their quiet, serious atmosphere than we are by the aura that surrounds the free discovery situation? Come now, fellow teachers, we know only too well what noise is all about. Let's be honest and admit it. Except for the occasional justified circumstance, noise tends to be more a reflection of the teacher's lack of sound disciplinary methods than his belief in the virtue of learning situations that produce noise. I am convinced that the most effective learning environment is, above all other things, a quiet one.

In the past few years, I have assessed my particular philosophy of classroom discipline in two distinctly different levels of society—in an inner-city school with pupils from a low socio-economic background and in a school with predominantly upper middle class pupils. The stark difference between the pupils is reflected in an incident drawn from each setting. In the inner-city school my welcome, delivered by a self-styled leader of the student body, consisted of an obscene warning to 'leave us alone' on pain of having my tires slashed if I failed to comply. In the more privileged setting, I was received with the greeting, 'Good morning, sir. My name is Fenwick, Bruce Fenwick. I am the President of my class. . . .' In each of these situations, essentially the same methods of class discipline were successfully applied.

ISCOVERY

Perhaps you have formed the impression that I regard discipline as a method, an art, a science. It is that and more. Discipline is the subtle harmony that saturates the very marrow of the academic, social, emotional, and physical elements of an effective learning environment, in which the smooth interplay of pupil, subject, and teacher reflects mutually earned respect, admiration, and love.

If this concept appears remote and idealistic, let us examine its prerequisites in a very practical way.

Mutually earned respect: Forget about yourself as an undisputed object of respect and focus upon your pupils. Do you respect them? Well, do you? Or do you see them merely as thirty-three very empty heads that need filling? Don't make the common mistake of respecting only what they do for you; respect them for what they are. You can communicate your respect to them by recognizing them as individuals. Find time during each week to talk to your pupils. Forget briefly about math and English and enter into their personal lives. Discuss Tom's new paper route, explore Anne's dreams for the future, let Bill tell of his brother's football prowess. In other words, be human.

Teach children to respect each other. This is important and not as difficult to accomplish as you may think. A simple, effective approach involves encouraging pupils to address each other in the classroom as Miss Jones or Mr. Brown. This little formality works wonders with the abrupt 'Hey, you!' shouted from the back of the room suddenly replaced by a courteous, 'May I borrow your ruler, Miss Jones?' Try it.

Admiration: How efficient are you? Does your concern with classroom discipline reach its peak when things start to fall apart? If so, it is unlikely that you will enjoy the admiration of students and staff. Sound discipline cannot operate efficiently on the unbalanced scale of situational ethics. The need for discipline throughout the school day is an established fact. Does that sound a bit strange? Discipline when things are going well? Perhaps what we are discussing is best expressed by an extract from the Annandale definition of discipline — 'a method of regulating principles and practice.' Does your class have a feeling of discipline during a mathematics lesson, an art class, or a group discussion? If so, you probably have no major disciplinary problems.

Discipline is a two-sided coin — a quality at once externally applied and internally developed. In the classroom, as in other areas of living, its implications are threefold: the mind is disciplined to think; the soul is disciplined to understand; and the body is disciplined to obey.

Practically speaking, how can you develop the values of thinking, understanding, and obedience in pupils? Here again, the approach is simple. Make less use of oral expressions of approval or disapproval of behavior. Other forms of communication have a meaningful place in the classroom. A certain look may 'speak' more effectively than many words. A 'sit down' gesture of the hands will bring immediate response. Silence, itself, plays a role. Remember this when you enter a classroom of unduly boisterous pupils. Stand perfectly still without speaking for a moment and see how quickly order is restored. Practice more sensory communication. It is tremendously effective. Correction need not be given in a raised voice. A reprimand delivered with quiet self-control is a far stronger measure. As teachers, we need to learn the art of keeping quiet and the subtle means of transmitting both the art and the awareness of its worth to our pupils. How paradoxical it is for a teacher to develop the habit of shouting, 'Children, keep quiet!'

Finally, what about making a little more use of the greatest human attribute — love? Long ago we learned that 'there is no fear in love, for perfect love casteth out fear.' Are you a disciple of fear or of love? If the latter, let it show. A little will go a long way. We all know that children have the unique ability of returning our love many times over. Earn their love and suddenly you possess a reward that has nothing to do with next September's salary increase but represents instead a very special kind of wealth. Love is the adhesive of respect. It is the crown of admiration and the cornerstone of discipline.

Experience teaches that there is much more to discipline than a few pat answers. Art it may be, and method, and science, but above all discipline is a way of life.

Cartoons by Apps

Ellen M. Regan
Department of Curriculum/OISE

The Conceptual Skills Program -

a 'thinking' program for kindergarten children

Photographs: Robert Title

The burgeoning interest in early childhood in the past decade has produced a host of new programs and approaches for teaching young children. Although every one has unique features, many show a concern with the cognitive or intellectual growth of the child. These so-called 'cognitively oriented' programs or approaches seem to operate on the premise that the most important period in an individual's *intellectual* development, as well as in his social and emotional development, is in the first six years of his life. The objectives of these programs, explicitly or implicitly, evidence concern for developing readiness for first grade — presenting kindergarten teachers, in particular, with a number of curriculum alternatives. One such alternative is the Conceptual Skills Program developed at OISE.

This program, designed to teach skill in the use of simple concepts, was developed over a three-year period. Approximately thirty Ontario kindergartens, as well as the demonstration classes for kindergarten children at OISE, took part in the field trials, testing all the tasks and instructional materials developed for the Conceptual Skills Program 'package.' The tasks and materials were then modified or revised in the light of the feedback obtained.

The concepts considered in the program relate to attributes of things in the environment — specifically: size, shape, color, action, location, use, parts, and number. Besides developing children's ability to use these concepts in simple tasks of identification (e.g., this ball is round), the program develops their communication skills and helps them to see relationships. Primarily it is a thinking program, although considerable emphasis is placed on language.

The communication skills considered are: *following instructions* (e.g., placing the circle on the cat and the triangle below the dog), *giving instructions* (e.g., telling the teacher or other children what to draw or color), *getting instructions* (e.g., asking questions to find out which animal to color), and *describing* or telling about something in detail (e.g., stating not only that there is a horse in a picture, but that the horse is jumping). Different tasks and materials in the program give the child an opportunity to act or follow through on information communicated to him by the teacher or another child. The child also has an opportunity to communicate information that will be acted on by the teacher or other children, so that in addition to following directions or instructions, the child generates information, ideas, questions, which he passes on to others, ensuring that he applies the basic concepts he has learned in a variety of communication tasks.

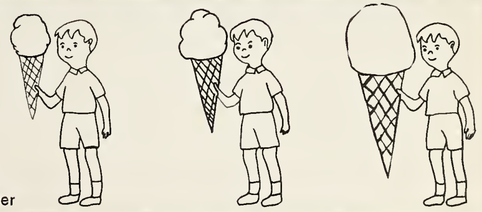
Similarly, the child is encouraged to apply basic concepts in tasks centered on seeing relationships. These include identifying and describing dimensions of sameness and difference, detecting and discussing incongruities and irrelevancies, choosing the consequence of a given action or event, and using class concepts in identifying and describing. Tasks and materials are designed so that the child goes beyond, for example, merely identifying two objects as different or noting the incongruity of a bicycle with one wheel. Opportunities are provided for specifying how the two objects differ and for discussing whether or not it makes a difference if a bicycle has only one wheel.

The Conceptual Skills Program represents a systematic (as opposed to an incidental or totally experience-based) approach to concept and skill development. Regardless of the activities, situations, or events that emerge in the kindergarten, it ensures that selected skills and concepts will be introduced and developed.

Although the concepts and skills considered in this program in some cases resemble ones considered in other cognitively oriented programs, many of the materials and tasks developed at OISE are unique. It is not simply an Ontario version of a program developed elsewhere.

Because the Conceptual Skills Program represents only a *part* of the total kindergarten program (20 to 25 minutes a day), it leaves the teacher free to develop other learning opportunities in the classroom. Most teachers now using the program bring the children together at a specified time each day. In the remaining hour and a half or so of the kindergarten day, each teacher proceeds according to her own plan or priorities, using the time for free play, music, art, physical education, or any other activities she may wish to pursue.

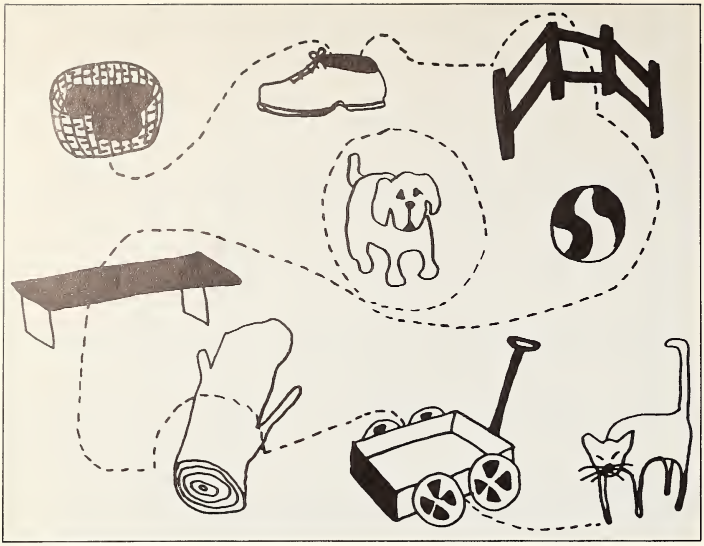
Although the rote learning of songs, poems, numbers, and days of the week is practiced in many kindergarten programs (and in many cases, justifiably so), it is not an inherent feature of the program; nevertheless pattern drill (an accepted technique in second language teaching) is suggested for work with young second language learners since it provides them with practice in recognizing and producing all elements in English sentences. The program is no more or less concerned with the speech components of volume and diction than are activities in which children rote count, say a poem, or sing a song. What is known about speech and language development suggests that the opportunities for verbalization provided in the program should have a positive influence on children's ability to speak clearly and distinctly. However, this is viewed as a valuable by-product of the program rather than as a primary goal.



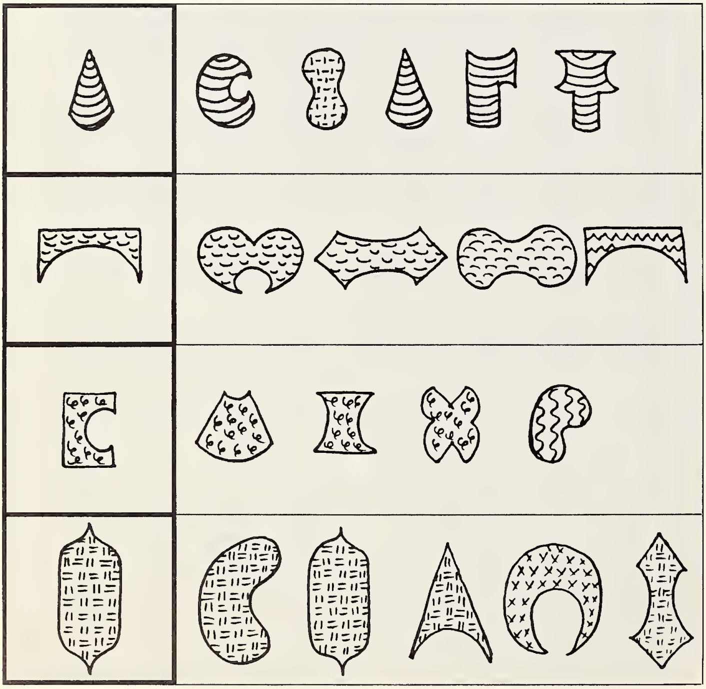
Comparatives—big and bigger

When a program encourages the didactic, or direct, teaching of skills and concepts to young children, as does the Conceptual Skills Program, the assumption or suspicion often arises that the methods for disciplining and controlling children will be prescribed or dictated, that material will be presented mechanically and indiscriminately regardless of children's abilities and needs, and that individual differences will be denied.

With respect to the first concern, visits to classrooms using the Conceptual Skills Program provide evidence that individual teachers use their own individual means or techniques for handling their groups. Observed differences among teachers indicate that the methods teachers use to manage, control, and discipline children is not a function of the program, but rather of the individual teacher's style. Teachers are encouraged to reinforce children's efforts verbally and to keep their attention focused on a given task during the instructional period. But beyond these suggestions and others for developing tasks, how the teacher copes with children's behavior is neither prescribed nor dictated.



Route-taking transparency—
location concepts



Relationships—same and different

Furthermore, the Conceptual Skills Program in no way intends teachers to move mechanically and indiscriminately through the program material. Because teachers participating in the field trials suggested that more help in planning lessons and organizing material was needed, the revised teachers' manual sequences the material in guides for daily lessons. However, teachers are expected (and encouraged) to adapt the daily lesson guide to the needs of their own groups, and to individuals within their groups. It should be pointed out, however, that individualization of instruction in any program depends not only on the teacher recognizing individual differences but, more importantly, on how well the teacher is able to diagnose the nature of the differences and to provide for them. Kindergarten teachers frequently teach songs, names of colors, names of fruits and vegetables, etc., to the whole group and (justifiably) do not consider such teaching as antithetical to the concept of individual differences. But most also recognize that in addition to group instruction, some children in the group will need further and, perhaps, individual help. As a rule, teachers provide for children having difficulty and hold different expectations for them. In fact, the program and materials are designed to assist teachers in discovering what individual problems exist and remedying them.

Kindergartens which have, to date, implemented the program include children from both advantaged and disadvantaged backgrounds. As a significant number of second language learners participated in the development work, a special edition of the teachers' manual has been prepared for work with second language learners. During the 1970/71 school year, dissemination of the program will be continued by the Office of Field Development at OISE, which will provide for some inservice training for those teachers who are using the program for the first time. It is anticipated that by September 1971, films will be available to provide the training required.

Since September 1967, when the Conceptual Skills Program was launched, educators from many parts of Ontario and other provinces have visited the classes taking part. In addition, visitors from England, Australia, New Zealand, Denmark, as well as from the United States, have expressed interest in the program. This interest reflects the concern among educators for developing in young children the concepts and skills that are the focus of the Conceptual Skills Program.

THE SCHOOL PRINCIPAL: A SERIES OF THREE ARTICLES

A New Look at Leadership

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It is commonly acknowledged that the principal should exercise leadership within the local school. However, consensus does not clarify how the term 'leadership' is translated into the actual job of administrator. The question of meaning remains.

There are many statements on what constitutes leadership. Some people describe it as the expression of certain personal traits that set one man apart from his fellows. Others define it as a social role that a person is assigned through the expectations of others, when he holds a given position — that is to say, a principal has a leadership role because, as the formal authority in the school, people expect him to be a leader. Still others contend that leadership bears a relationship to the local situation and describe the leader as the person who is at the center of the communications network or the interaction pattern, or even as the one who conforms most closely to group norms.

All these explanations of leadership contain some truth, but none are inclusive enough. Leadership by the principal results from an exchange of resources or influence with others in the school situation. In this context, leadership becomes an investment process. In attempting an act of leadership, the principal invests types of influence to reach his objective. He recognizes that other members of the school system have resources or influence they may use against him and attempts a leadership act when he feels that the probability of success outweighs the risk of failure. Leadership by a principal is a form of compromise, and whether or not he is seen as a leader depends on the balance he achieves between success and failure.

This may seem a rather callous way of looking at administrative leadership, but the definition softens when we look more closely at what makes up the resources in a local school situation. The resources that the principal has to influence people are fairly obvious. Foremost is his official position as administrator, which gives him much support in the areas of decision authority and communication with the central office. The community also looks to the principal as spokesman for his school. Other resources a principal may have are interpersonal skill and charisma — an administrator who can deal effectively with people may not have to rely on his official authority. An interest in particular subjects may constitute yet another resource — a principal who is concerned with one major subject may concentrate all his influence to ensure success in that area.

On the other hand, there are many different types of influence that can be used against a principal. Usually these are less obvious than the principal's resources, but they can be just as effective. One that is familiar is the delaying tactic. A clique of teachers may sabotage a plan by drawing out the decision process and delaying implementation. There will be cries of 'not enough materials' or 'not enough time' until the decision is rendered ineffective. Another powerful type of influence is the self-contained classroom. This enables teachers to close the door and keep the principal from knowing whether his decisions are being implemented or circumvented.

These represent only a few of the many resources available to principal and staff in the local school situation.

Describing leadership as a compromise situation adds up to stating that the principal must work with others to be a leader. He must recognize that arbitrary decisions on his part may run into resistance and ultimately bring about failure. To be a leader, a principal must maximize his influence and work to lower resistance from staff members and the student body.

We have discussed what leadership entails, but we have not considered why a leader acts. In other words, what makes a person try to be a leader; more specifically, why does a principal act in the local school situation? He may act for three broad reasons: to change or maintain an existing situation, to gain more personal independence or security, or to foster dependence or independence in others.

The principal may find that at some times he acts as a leader to change the existing situation and at others to maintain the status quo. Too often, leadership is discussed only in the context of change, or of being an agent for change, and its frequently essential maintenance function is ignored. In innovative schools, however, one of the greatest difficulties faced by principals is the pressure of teachers and laymen to turn back the clock and return to the old way of doing things.

Again, a principal may act to gain autonomy, striving to get a decision that affords him room to work without the pressures of the central office, community, and parents, or he may act to gain more security in the existing situation. There are times when a person wants to be dependent on existing school rules and regulations, and if a principal finds himself under attack, he may want to be identified as a part of the total school system and not just as administrator of Peabody Elementary School.

Finally, a principal may act to make others more dependent or more independent. If he feels that the teachers are acting in a way that is contrary to the overall goals of the school, he may attempt to bring them into line. If he feels the teachers should be more innovative or creative, he may try to give them more independence.

There are certain decision areas where the principal must provide leadership in the local school. These can be described as external and internal. If the principal wants to move from the role of final authority in all local school decisions, he must engage in specific tasks. Liberation is not easy. It demands the use of definite strategies and techniques to allow others to share in decision making. The principal must exercise leadership to disengage himself from making all decisions. Decision making cannot be delegated without a conscious effort to influence potential decision-makers to consider the implications of both responsibility and accountability. This means the principal must use his available resources to carry out strategies and techniques toward this end.

An example of a principal working with teachers in the general decision area of supervision may clarify the concepts of strategy and technique. The principal must do at least three things to improve teaching and provide real leadership in the area of supervision. He must develop strategies, specify techniques, and be ready to play an active part in instructional leadership. Lest any confusion arise from the use of these terms, I shall define 'strategies' as the long-range plans to reach a goal, and 'techniques' as the means of carrying out the plans.

In supervision, 'strategy' means developing plans for reaching attainable goals in curriculum development and instructional improvement. These strategies, or plans, must be developed cooperatively with the teachers and any other groups that are necessary to ensure a successful combination in decision making. Once agreement is reached, the goals and techniques agreed on should be recorded in writing.

The principal must then use specific techniques. This means giving 'leg-work'-type leadership. As teachers are generally tied up with the everyday task of teaching a roomful of children, the principal must make contacts and arrange the activities and resources necessary to the teaching improvement plan.

Finally, the principal must play an active part within his school while the strategy is being developed. He must lead planned change. At the same time, he may find himself defending the instructional plan from outside attack. In a sense, the principal maintains his school situation within a changing structure. He must link or coordinate the program with the rest of the school activities. The principal exerts active supervisory leadership by interlocking change, maintenance, and coordination.

The principal as leader must answer five questions in dealing with any local school problem. The answers clarify how leadership is interpreted, and how the principal sees his job as administrator.

1. Why do you want to attempt a leadership act?
To change or maintain the existing situation?
To gain personal autonomy or security?
To foster dependence or independence in others?
2. What problem area is the leadership question in?
External?
Internal?
3. Have you worked out clear-cut strategies and techniques for presenting your position?
4. What are your chances of success in an exchange of influence?
Cost: What resources can you bring to bear to succeed? What resistance can others make to defeat your goals?
Investment: What are you willing to give for success?
Reward: What will be the outcome if the venture is successful?
5. If there is a probability of failure or if the cost of success is too great, what modifications can be made?
In goals?
In techniques?
In resources used?

Liberation of the Principal Outside the Local School

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OISE

We hear a great deal these days about the women's liberation movement. Traditional roles for women are being challenged. There is a hue and cry about getting away from dirty dishes, endless supervision of children, subservience on every hand, and atrophy of the mind.

A problem of less concern to the public at large, but of great import within our specialized field of educational administration, is what I would label the need for a liberation movement for school principals. By this I mean that principals, if they are to do their job properly, must start behaving differently on the job. They must find a means of cutting through the day-to-day minutiae of school administration and possessing themselves of that stature that is their right as administrators of the organizations in which they are employed. They must apply their intelligence and imagination to expand the narrow focus of their professional world.

Why do principals need to be liberated? On a very practical level, the reasons involve the growth in the size and complexity of schools. Schools now operate with thirty to a hundred teachers, a cadre of supporting staff, a thousand or more pupils, and a budget in the hundreds of thousands of dollars. Furthermore, individual schools are parts of large systems that control, through complex mechanisms, the distribution of resources, facilities, and personnel. It takes more than a master teacher, a fugitive from the classroom, to organize and be responsible for such an operation.

How can a principal be liberated? One aspect of liberation involves changing what he does within the school — adopting means of relating more effectively to the staff, students, and program. Another aspect, a most significant one, involves changing what he does outside the school, in the community, and within the school system as a whole.

Principals must spend more time on problems and relationships outside their schools. Studies indicate that about 14 percent of a principal's time is spent on external matters; considerably more than this would be appropriate, perhaps as much as 40 or 50 percent. But allocation of time is only a beginning; the crucial point is *how* the time should be spent. In this connection, I shall make some propositions about the principal's role and examine their implications briefly.

Proposition 1: *The role of the principal requires that he develop sound relationships with the central office of the school system*
To play a decisive role in obtaining resources for his school, the principal must understand the workings of the central administration. He must spend time at the central office, developing relationships, discovering how things are done, and working to ensure that the needs of his school are met as fully as available resources and overall needs will permit.

Principals should argue for direct membership in whatever group decides on matters to be placed before the board of education. In too many systems, major policy recommendations and decisions on their implementation are determined by the director and superintendents without real inputs — beyond advice — by principals. Principals must be part of the decision-making process and must fully assume the attendant responsibility.

One of the barriers to the development of a strong and effective role for principals is the tendency of school boards to divide their districts into geographical areas, giving general responsibility for all the schools in that area to a second-level administrator, often called an area superintendent. In such cases, individual principals are accountable to the area superintendent, who then relates directly to the central office. There are valid, practical reasons for this procedure, but it tends to inhibit the development of autonomous individual schools and to restrict the scope for leadership by principals as they must then filter their requests through the area office and may relinquish something of their own accountability in the process.

As individual schools grow larger, with more highly qualified administrators, and as the technology for communication improves, it would be desirable to appoint functional and consultative specialists to the central office and encourage principals to work directly with them. Area offices could be maintained, but their function should be to dispense special services at the school level. For purposes of area coordination, principals could form a suborganization to deal with problems common to all schools in the area.

Proposition 2: *The role of principal requires that he develop a close working relationship with the community in which his school is located*
In many ways, principals function effectively with the local community, especially in their relationships with individual parents. However, if we accept the idea that schools are becoming more autonomous and more accountable for their own programs, then we can argue for more systematic relationships between individual schools and the community. The fostering of such relationships is the responsibility of the principal.

In this connection, a workable procedure would be for each school to set up an advisory committee of parents and other interested residents in the area. The advisory committee would consider and suggest solutions for problems brought to it by the principal, thus providing a formal mechanism for the development of meaningful relations between the school and the community.

Proposition 3: *The role of principal requires that he develop a knowledge of and a cooperative relationship with other schools in the district*
A principal cannot find out what is going on outside by sitting in his office and having contact only with his own staff. Nor can he develop general awareness or effectiveness in this way. He must get out, visit other schools in the district, and interact with other administrators on a continuing basis.

In addition to giving the individual principal knowledge of the program of the whole system and providing information and ideas, direct contact with other schools would foster cohesiveness among principals and promote strong corporate action in the formulation of district policies. By working together, principals can create opportunities for change that would not otherwise exist.

Proposition 4: *The role of principal requires that he be at least acquainted with the operation of the board of education*
Principals should attend meetings of the board of education and consider this part of their job. If the board is operating well, it will consider policy affecting all schools, and all principals should be aware of the policy-making process, the nuances of the arguments, the stances of the various board members, and the relationship of the board to the professional staff. If the board is not operating well, principals should know this and be willing to exert influence to improve matters.

Proposition 5: *The role of the principal requires that he interact with agencies outside the school system*
It was pointed out earlier that principals need to expand their horizons beyond the walls of their individual schools. In pursuit of this goal, they should ask for policies that provide for their involvement in a wide range of visits and educational activities conducted at all levels and under a variety of sponsors. Principals in Ontario come from the ranks of the teachers, and their formal training in administration tends to be minimal. The individual principal can do much to compensate for this situation through a carefully developed personal program of inservice training.

In summary, if these five propositions are actively acknowledged, principals will allocate their time substantially to matters outside the schools, but to the schools' ultimate benefit. Such a procedure assumes, however, that schools are organized internally to run on a self-sufficient basis, that the staff does not require constant supervision, and that the principal is willing to delegate authority without abdicating any part of his full measure of responsibility.

Liberation of the Principal Within the Local School

D. K. Wiles

A liberated principal does not feel an obligation to make the final decision on every local school problem. Liberation changes his role of ultimate decision-maker to that of manager or coordinator. In other words, he establishes the general framework for internal decision making and allows others to handle certain specific decisions.

Two changes must take place before a principal becomes liberated. First, he must delegate actual authority for decision making. This is not a balloon-on-string arrangement whereby authority can be given and taken back at whim; authority must be delegated in specified areas on a permanent basis.

Second, he needs to change his state of mind. The principal must feel secure in the delegation of decision authority. He must feel that the persons to whom responsibility is given are willing and able to make decisions. A principal who fears this is not the case may be less liberated than he was before he delegated responsibility to others.

To reach the state of mind that allows delegation of decision authority, the principal must undertake active leadership. He is still held responsible for his school by the system, and he cannot assume that competent decision making by others in the school is an automatic gift. Simply delegating decision authority, without consciously training the people to whom it is assigned in the decision-making process, can have disastrous consequences for a school. Group decision making, like the democratic process, is learned; the principal must work with teachers and students, helping them to consider the total picture of making decisions.

The key to the delegation of authority lies in the concurrent acceptance of accountability for decisions by the person concerned. Internal administrative leadership revolves on working with students and teachers to develop an understanding and an acceptance of both aspects of decision making. Mechanisms for accountability in teacher or student decisions must be agreed upon when the principal agrees to delegate authority. This matter is critical if the administrator is to feel secure in sharing the right of decision with others. Principal liberation is not an easy task, and personal freedom within the school calls for real leadership.

The local school administrator should focus his leadership efforts on teachers and students. Both groups are capable of making many of the decisions traditionally made by the principal. In creating a climate for shared decision making, the principal should work toward realistic and mutually acceptable arrangements for delegating authority and accountability in the areas covered in the following propositions.

Proposition 1: *Teachers should decide on questions of learning procedures and methods of curriculum presentation*
The increasing impact of new curriculum and teaching specializations makes the teacher the primary expert in how to teach. In theory, this is the arrangement that has always existed in schools. In fact, many principals have found themselves faced with the necessity of teaching teachers the methods of presenting material. This need is fast disappearing, and today's principal can and should encourage the movement toward teacher responsibility.

Proposition 2: *Teachers should determine teaching effectiveness and should 'police' themselves for incompetency*
Many principals will see this as a pie-in-the-sky proposal. However, in many cases, such as the high school with a staff of eighty to a hundred teachers, it is the only realistic approach. From the standpoint of time alone, the principal cannot undertake the evaluation of teaching effectiveness; nor should he. Teacher professionalization is tied to the determination of one's own affairs, and the assumption of accountability for them. The staff that is truly professional will recognize competency and incompetency and will take appropriate action with regard to each. The principal should work toward the development of his staff's ability to make decisions in this area.

Proposition 3: *Students should determine procedures and regulations for self-discipline and government*
Within the framework of school-system regulations, students should discipline and govern themselves. The question here is not *whether* there will be student control but rather *who* exercises the control. Students, even elementary school children, are capable of governing themselves if they are trained in making decisions. If anything, students may be overzealous and overcompensate by making rules of behavior too specific. The principal should encourage student decision making and use the power of group conformity, which supports the regulatory mechanisms.

Proposition 4: *Students should help decide curriculum content*
This is an especially tricky leadership area because there may be open conflict between students and teachers about content. The rationale that led the principal to delegate to his staff responsibility for decisions regarding course content may profitably be applied as teachers debate the question of student involvement in content decisions. No authority can dictate from above what is relevant to students; students must be involved in determining content if teachers are to be assured of 'getting through' to them.

In summary, the four propositions stated above point the direction the principal who is striving for liberation should take in concentrating his leadership efforts. The measure of his own freedom is dependent upon the extent to which he frees others, for internal liberation requires the delegation of some authority to other persons or groups within the school. Delegation, in turn, involves the two faces of decision making — responsibility and accountability. Like Janus, neither face can be considered separately in a liberated school environment.

L'ECOLE COOPERATIVE, MERVEILLEUX OUTIL DE SUCCES PEDAGOGIQUE

Claude Trudel, Directeur adjoint,
et
Marc-Yvain Giroux, Directeur,
Ecole Princesse-Elisabeth,
Welland

L'école d'aujourd'hui répond-elle à tous les besoins des enfants qui la fréquentent? Le trop grand nombre d'élèves, le recyclage des maîtres, les multiples exigences du milieu social font qu'il est difficile de l'affirmer.

Comment alors pouvons-nous aider les enseignants à mieux satisfaire aux demandes croissantes de l'éducation moderne? Le Rapport Hall-Dennis sur les buts et objectifs de l'éducation dans les écoles de l'Ontario suggère deux moyens qui nous semblent bien opportuns; il recommande d'abord au personnel scolaire 'de s'assurer l'aide bénévole des associations de parents et maîtres, et d'autres membres de la collectivité pour les activités scolaires et parascolaires.' (Article 215.) Puis il recommande aux conseils scolaires 'de permettre la fondation d'un comité école-parents dans chaque district scolaire, aux fins d'aider le personnel scolaire à expliquer le rôle de l'école à la collectivité et de permettre au personnel scolaire et aux commissaires de suivre l'évolution des besoins de la collectivité.' (Article 216.)

Les instituteurs franco-ontariens semblent plus favorables que leurs collègues anglophones de la province à ces recommandations. Du moins c'est une des conclusions de la récente analyse statistique que J. Rosaire Cloutier et Dormer Ellis ont faite du Rapport Hall-Dennis *(Les instituteurs francophones et le Rapport Hall-Dennis,* Rapport du 11e congrès annuel du Conseil ontarien de la recherche pédagogique, décembre 1969).

En raison de la nature même de l'enseignement bilingue qu'ils doivent dispenser, les enseignants francophones auraient-ils une tâche plus ardue que leurs collègues de langue anglaise?

Quoi qu'il en soit, une nouvelle formule a été mise à l'essai à l'école publique Princesse-Elisabeth pendant l'année scolaire 1969/70 en vue de permettre aux parents de jouer un rôle plus actif au sein de l'Association Parents-Instituteurs. On l'a baptisée *l'Ecole coopérative Princesse-Elisabeth.* Conçu par le directeur de l'école, le plan fut appuyé par les membres de son personnel et par un groupe de parents de l'Association.

Avant de parler de la fondation de cette école coopérative et de ses premières réalisations, disons tout d'abord un mot de l'établissement scolaire lui-même et de son entourage social. L'Ecole publique Princesse-Elisabeth, sous l'égide du conseil scolaire de Niagara-sud, est située à Welland, Ontario, ville industrielle de 45,000 âmes environ. C'est une école élémentaire fréquentée par 560 élèves de langue française, échelonnés du jardin d'enfants à la 6e année. Les parents de ces élèves, en grande majorité originaires de la province de Québec, travaillent dans les nombreuses usines de la ville. On compte cependant parmi eux plusieurs commerçants et quelques professionnels.

Avec ses dix-huit salles de classe et son petit gymnase, le bâtiment n'a rien de particulier. La toute petite pièce qui sert de bibliothèque peut à peine accommoder une douzaine d'élèves. Mais ce qui caractérise l'école, c'est son esprit. En effet, depuis environ cinq ans on tente d'y appliquer les procédés de l'école active où la pédagogie est centrée sur l'enfant. Depuis plusieurs années, l'Association Parents-Instituteurs joue un rôle essentiel pour rapprocher l'école et le foyer. Toutefois peu de parents étaient vraiment actifs au sein de l'Association. Devant les besoins toujours croissants de l'établissement, il fallait innover afin de sensibiliser davantage les parents et de les amener à jouer ensuite un rôle plus actif.

Le but de l'école coopérative est donc de rendre les parents conscients des besoins de l'enfant et de les intégrer dans le rouage complexe de l'éducation. La nouvelle formule tente de réunir parents et maîtres dans une tâche d'éducation proprement dite qui leur permette de participer activement à l'orientation d'un renouveau pédagogique bien mûri.

Quelles étapes ont marqué l'implantation de cette école coopérative? D'abord, le directeur en élabora le plan de concert avec le bureau de l'Association Parents-Instituteurs. Les membres du personnel furent mis au courant du projet et invités à participer selon leur intérêt au sein des comités de travail.

Puis, on a tenu plusieurs réunions entre les membres du personnel, suivies d'autres rencontres avec la direction de l'Association. Au moyen d'une lettre circulaire destinée aux parents, intitulée 'Le Courrier de l'école Princesse-Elisabeth,' le directeur renseigna les parents au début de septembre sur les buts et les objectifs de l'école coopérative. Il les invita à donner leurs suggestions et à s'offrir comme membres de comités de travail, français, bibliothèque, psychologie des enfants, loisirs, et religion. 'Le Courrier,' ainsi que les nombreux communiqués distribués par les élèves, ont servi de communication entre l'école et le foyer. Très simple, ils ont réussi à injecter l'intérêt nécessaire et parfois à permettre une saine interrogation. Les parents ont souvent eu l'occasion d'exprimer leurs commentaires, leurs suggestions, leurs problèmes. Soulignons que les contacts individuels et les rencontres de petits groupes se sont révélés également très utiles pour l'organisation de l'école coopérative.

Lors de la première assemblée plénière, à laquelle assistèrent environ cent quarante parents, le directeur a présenté le plan général et les implications de cette école coopérative. La formule des comités de travail ayant été acceptée, les parents et les instituteurs se divisèrent en quatre groupes pour procéder à l'élection du comité de direction de chacun et pour définir les plans de travail de l'année courante. Chaque comité décida ensuite de la date des réunions mensuelles pour les séances régulières d'étude et d'information. Un rapport du travail des comités était présenté à l'assemblée générale qui s'est réunie trois fois durant l'année.

L'école coopérative a-t-elle atteint ses objectifs au cours de la première année? Du point de vue de la participation des parents ce fut un franc succès. Environ cent vingt parents ont pris part au travail des comités. Les rencontres ont été bien dirigées et les résultats sont très encourageants.

Un seul comité a éprouvé de sérieuses difficultés à démarrer, faute d'objectifs précis. Notons ici quelques-unes des réalisations concrètes. Le comité des loisirs a réussi à présenter plusieurs films français de choix aux élèves. Ces films étaient d'abord présentés durant les heures de classe et ensuite le samedi après-midi pour tous ceux qui voulaient les revoir. Le besoin de fonder un ciné-club pour enfants est maintenant reconnu. Le comité de français s'est efforcé de renseigner les parents sur les moyens d'améliorer la qualité du français de leurs enfants. Les membres de ce comité ont visité ensemble la bibliothèque municipale; ils ont invité le directeur du poste de radio CJBC de Toronto ainsi que le responsable des relations publiques de ce poste à présenter toute la gamme des émissions françaises. Aussi plusieurs témoignages éloquents furent donnés par des mères sur les moyens d'encourager leurs enfants à parler français au foyer. Nous croyons que les parents sont donc maintenant plus conscients que jamais de l'importance et aussi de la complexité de l'enseignement de la langue.

Le comité de psychologie présenta à ses membres une série de films sur le développement de l'enfant. Il distribua une bibliographie de livres de psychologie et invita un psychiatre de langue française de Hull (Québec) qui s'adressa à environ deux cent parents réunis à l'école.

Le comité de religion tenta au cours de l'année de renseigner les parents sur la nécessité et les moyens d'enseigner la catéchèse aux enfants. Ce comité a joué un rôle capital en organisant des réunions très vivantes en collaboration avec les prêtres de la paroisse.

Une vingtaine de parents sont venus travailler à l'organisation de notre petite bibliothèque scolaire. Environ trois milles volumes ont été classifiés et étiquetés. Ces mêmes parents se rendent maintenant à l'école pour y travailler comme bibliothécaires au service des élèves de la section primaire.

Mais le résultat le plus significatif est que *l'école coopérative* nous a permis de faire comprendre aux parents que leur présence est requise à l'école pour assister les enseignants dans leur travail auprès de leurs enfants. Ainsi nous sommes présentement occupés à organiser un projet pilote qui sera soumis au conseil scolaire et selon lequel l'aide bénévole de plusieurs parents viendrait nous épauler l'an prochain dans la tâche gigantesque de l'éducation. L'école coopérative Princesse-Elisabeth tendra à la formation de ses propres membres qui pourront ainsi mieux contribuer à l'oeuvre de l'éducation.

The author of this article is Director of the Humanities Curriculum Project with the Schools Council in the U.K. Although his article is written primarily for a U.K. audience, much of what he has to say will be of interest to Canadian readers.

PUPILS INTO STUDENTS

Lawrence Stenhouse

The raising of the school leaving age in the U.K. will bring in its train innumerable problems, which will be items on the agenda of secondary education over the next ten or even twenty years. Those who believe in this extension of education are committed to the idea that the solving of these problems will be a fruitful process, shaping the character of our future secondary school, emancipating it from the persistent spirit of the old elementary tradition and giving a final reality to the slogan: 'Secondary Education for All.'

Two important breakthroughs seem to be necessary.

We need to establish a new climate of relationships with adolescents which takes account of their responsibility and is not authoritarian. Education must be founded on their cooperation, not on coercion. We must find a way of expressing our common humanity with our pupils, and we must be sensitive to the need to justify the decisions of authority to those affected by them.

At the same time we need gradually to develop the capacity for independent study and enquiry with the flexibility of mind which this implies. In short, we need to transform our adolescent pupils into students.

Anyone who knows the typical British school leaver will not underestimate the audacity of this proposal. It defines the task of the secondary school in terms which make it clear that the struggle for the teacher will be only a little less demanding than that confronting his colleagues who a hundred years ago took into the elementary schools the first generation of children to be caught in the net of compulsory education.

The Schools Council's program of research and development in preparation for the raising of the school leaving age cannot offer solutions to the problems teachers will meet. Changes in relationships, new patterns of school organization, new methods of teaching, and even, in detail, adjustments of content can only be worked out and tested in practice after the leaving age has gone up. What Council projects can do is help to define the nature of some of these problems clearly and operationally, devise teaching strategies which can serve as lines of experiment and teacher self-development, and support with materials teachers disposed to embark on such experiments.

There can be no development in curriculum except through development of teachers. Some help can be given by retraining, but the basis of change in the schools is the self-development of teachers with high professional standards.

It is only when viewed within the context of a research and development program conceived in this way that the Humanities Curriculum Project can be properly understood. It starts from the conception of the humanities expressed by the project committee in its statement that 'the problem is to give every man some access to a complex cultural inheritance, some hold on his personal life and on his relationships with the various communities to which he belongs, some extension of his understanding of, and sensitivity towards, other human beings. The aim is to forward understanding, discrimination, and judgment in the human field.' The Project attempts, by defining an experimental classroom procedure and publishing materials which can feed that procedure, to support teachers who are prepared to work towards this aim although they recognize full well that its achievement will in the long run involve radical changes in the organization of the school and in the attitudes of teachers to students.

The project has been concerned with the problem of teaching through discussion in the highly controversial subject areas which are inevitably the staple of a humanities curriculum for the adolescent. As a result of experience in schools, it is defining with progressively greater clarity a pattern of discussion teaching in which students review evidence under the chairmanship of a teacher who represents educational values and critical standards, but maintains neutrality on the controversial issues under discussion.

What is meant by evidence in this context? Certainly not materials which represent an authoritative statement. All materials — photographs and statistical tables as well as poems and paintings — imply some sort of value position and need to be critically examined. By employing the word *evidence*, we mean to define not the status of the materials, but the way they are used. They are used not for their own sake, but in order to contribute to the discussion of a controversial issue, and in this context they must be weighed reflectively and critically.

It is also pertinent to ask: what is meant by educational values and critical standards? The teacher, though he be neutral on controversial issues, has as an educator a responsibility to foster rationality rather than irrationality, sensitivity rather than insensitivity, imaginativeness rather than unimaginativeness, tolerance rather than intolerance. He must also help students to see that standards of critical judgment are important. It is important that he learn to do this through thoughtful questioning which does not direct the students to particular conclusions in controversial areas.

Of course, it is not possible to attain perfect neutrality. The important point is that the teacher accepts the principle of neutrality as a criterion by which to criticize his teaching and that he makes this criterion clear to his students so that both he and the group understand what he is trying to do.

The research of the project in schools has concentrated on developing a teaching strategy which meets the specification outlined above and which is a means of self-training for teachers. In order to get the maximum benefit from the work of the project, a team of teachers needs to stick rigorously to the suggested strategy, making tape recordings of their discussion work and exchanging ideas with one another. The project team believe that by the end of a year such a group of teachers will have trained themselves in the skills of discussion work and also have developed a sensitive understanding of the problems of work of this kind which will enable them to re-examine, modify, and develop the strategy researched by the project. In short the object is to put a new and powerful skill in discussion work within the repertoire of the teacher as he meets the problem of the new fourth and fifth year.

Members of the Schools Council and Nuffield Foundation Humanities Curriculum Project.

At the same time the project will be publishing collections of materials in such areas as War, Education, The Family, Relations between the Sexes, People and Work, Poverty, Living in Cities, and Law and Order. An exploratory study is being mounted in the area of race relations, and materials may be offered there also. These materials are intended as foundation collections for documentation centers, starters on which teachers can build. They carry no more authority than the foundation collection of a school library. There is no suggestion that these and only these materials should be used: rather they are examples. About half the materials are visual or audio. Reading levels in the written materials range from that of the popular newspaper to materials that are much more difficult. The choice of materials reflects a slightly new approach to the problem of comprehension. Teachers who are experimenting with the method ought also to test the hypothesis that when the chairman is neutral and therefore not dominant, so that he successfully induces the group to accept responsibility for its own work, reading levels may be considerably raised over the term of the two-year course.

The materials have not been subjected to bowdlerization or censorship, and schools will have decisions to make in this area. In making these decisions, the circumstances of particular schools and the climate of particular discussion groups will have to be taken into consideration. However, it is important to bear in mind that it is not possible to deal with war and sex and race in an adult way without some readiness to venture, and that we cannot help young people with problems if we protect them from them. The project team believes that problems of censorship and reading level will be much more acute where the suggested strategy is not followed.

Students at Crown Woods Comprehensive School at Eltham in the U.K. debate a 'Humanities' theme using trial materials.

As a general rule, teachers who wish to experiment undergo a short training course of about four days and thereafter adopt a self-training procedure. Since the facilities of the project team are not sufficient to permit the training of teachers from all interested schools, the team conducts training programs for personnel nominated by local education authorities. These staff members in turn provide a resource through which the local authority offers training schemes for its own teachers. Teachers engaged in the experiment are afforded further assistance through printed materials, the first of which were produced by Heinemann in the spring of 1970.

In addition to teaching materials for the classroom, a research series, 'Studies in Humanities Teaching,' will be published. This series will report on work in schools and deal with special problems such as supporting research by pupils, creative work by pupils, the dynamics of discussion, school organization, and examining. The evaluation studies of the project will also be published in this series.

The area of the curriculum in which the project is working is fraught with problems. It would be absurd to attempt to offer ready and easy solutions to these. But we can offer thoughtful support to teachers who are grappling with the difficulties on the classroom floor. Such support is partly in the form of materials, partly in the form of research findings, and partly in the form of a strategy for self-training and development. This conception of what a research and development project can offer to a teacher increases his responsibility both for choice and for thoughtful action: but it also tries to offer him support in shouldering that responsibility. Research and development should be an instrument of the professional teacher, not his master.

Teaching Aids from the Community

Ontario Department of Energy and Resources Management

Readers are reminded that, because of the high cost involved in the preparation of materials reviewed, requests should be made only when appropriate use is assured.

Publications
Please note: The address from which each of the following publications can be obtained appears at the end of each individual item.

Watersheds
This periodical is published quarterly in the interests of conservation throughout Ontario. *Watersheds* reviews the past and present and predicts something of the future in safeguarding and restoring Ontario's natural resources. Reviews of current literature on conservation for adults and for younger readers are a regular feature. *Watersheds* is available without charge. Requests to be placed on the mailing list should be addressed to:
The Conservation Authorities Branch
Ontario Department of Energy and Resources Management
880 Bay Street
Toronto 5, Ontario.

Oil and Gas in Ontario — Yesterday, Today and Tomorrow
This 44-page illustrated booklet tells the story of Ontario's petroleum industry and provides a concise description of oil formation, exploration, drilling, production, and refining. Sketches, a geological time chart, and a table of crude oil products supplement the text. Copies are available without charge from:
Ontario Department of Energy and Resources Management
880 Bay Street
Toronto 5, Ontario.

Perspective
A review of the steps taken by Ontario Hydro to combat pollution, while continuing to provide low-cost electrical power. This publication deals with the problems of pollution in general and gives special attention to the reduction of the sulphur dioxide level in the atmosphere. Water pollution and pollution caused by nuclear plants are also discussed. *Perspective* is published irregularly.
Copies can be obtained without charge from:
Ontario Hydro
620 University Avenue
Toronto 2, Ontario.

1968/1969 Ontario Department of Energy and Resources Management Annual Report
The work of the Department of Energy and Resources Management is presented in capsule form in this 48-page report. Extensive statistical information is supplemented by a concise review of the activities of the fiscal year 1968/1969, photographs, graphs, and a map showing gas and oil field locations in southwestern Ontario. In addition to serving as a valuable reference, the report provides an overview of the concerns of the Department.
Copies are available without charge from:
Ontario Department of Energy and Resources Management
880 Bay Street
Toronto 5, Ontario.

Audio-Visual Materials

The following materials have been drawn to our attention by the Department of Energy and Resources Management. All inquiries and requests should be addressed as indicated at the end of each item.

Soliloquy of a River
(Audubon Wildlife Film Series)
26 minutes (color) —
the story of riverside animals and how they are affected by water and air pollution. Suitable for public schools. To borrow, please inquire at your regional library. If not available from that source, information on the nearest loan source can be obtained from Educational Film Distributors, 191 Eglinton Avenue East, Toronto (Purchase price $300.)

Erie Report
(Produced by CFPL-TV)
47½ minutes (color) —
a 16-mm documentary based on CFPL-TV's public affairs series 'The World Around Us'. Examines in dramatic detail the causes and effects of the pollution of Lake Erie. Suitable for grade 7 and up. To borrow prints, inquire at your nearest regional public library. (Purchase price from Pathe-Humphries Canada Limited, 9 Brockhouse Road, Toronto 14, is $187.50 plus tax.)

Matter of Attitudes
(National Film Board)
28 minutes (color) —
opinions of professionals and laymen on water, air, and waste pollution. Hosted by Laurier Lapierre and Patrick Watson. Suitable for grade 7 and up. Available on loan without charge, subject to the availability of prints. All inquiries should be addressed to the National Film Board Office in your area. (Purchase price $260.)

First Mile Up
(National Film Board)
17½ minutes (black-and-white) —
deals with air pollution. Suitable for grade 11 and up. Available on loan, without charge, subject to the availability of prints. All inquiries should be addressed to the National Film Board Office in your area. (Purchase price $90.)

Cities in Crisis: A Matter of Survival
(Produced by Universal Education and Visual Arts)
18 minutes (color) —
the ugliness of pollution shown in striking contrast to the beauty of nature. The causes, effects, and possible ways of combating air, water, and soil pollution are discussed. Suitable for grade 7 and up.
Available for purchase only from:
Universal Education and Visual Arts
2450 Victoria Park Avenue
Scarborough, Ontario.
(Purchase price $245.)

Crisis of the Environment
(Produced by the New York Times)
a kit containing 5 color filmstrips with accompanying records (33⅓ rpm), printed texts, teaching manuals, and pollution detector (Ringelman Scale). Filmstrips as listed below:
1. 'Man: An Endangered Species' —
human problems arising from air and water pollution.
2. 'Breaking the Biological Strand' —
the balance of nature, upset by pesticides and fertilizers.
3. 'Vanishing Species' —
man's extermination of wildlife in the context of the evolutionary process.
4. 'Preserve and Protect' —
the disappearance of America's natural wilderness and the price of its preservation.
5. 'The Population Explosion' —
the implications of overpopulation.

Available for purchase only by complete kits from:
Visual Education Company
95 Berkeley Street, Toronto 2A
Ontario.
(Purchase price approximately $115 per kit.)

Environment of Man Series
(Produced in cooperation with UPITN, the television news subsidiary of United Press International) — two sets, each containing 5 color filmstrips and 3 records (33⅓ rpm).

Set I: Ecology and Environment
1. 'Is There Life on Earth?' —
the balance of nature on Earth viewed by a 'visitor' from another world.
2. 'Ocean of Air' —
the components of the atmosphere as they relate to life on Earth.
3. 'Water — Clear and Otherwise' —
an examination of man's dependence on clean water and the problems of pollution.
4. 'Of Food and Land' —
a study of the life-support elements, man's destructive practices, and the corrective potential of science.
5. 'Energy Applied' —
a review of man's dependence on energy and his search for new energy sources.

Set II: Man and Nature
1. 'Population — The Numbers Game' —
the threat of overpopulation to vital life support systems.
2. 'Concrete Habitat' —
an analysis of the urban dweller and the threats to his political and social institutions.
3. 'The Busy-Body' —
a report on the internal pollution of the human body by tension, poor nutrition, drugs, tobacco, and alcohol.
4. 'Unthinking Man' —
man's lack of foresight seen as a destructive force in nature.
5. 'Man the Builder' —
a study of man's ability to rebuild his environment.

Available for purchase only by complete sets from:
Visual Education Company
95 Berkeley Street, Toronto 2A
Ontario.
(Purchase price approximately $75 per set.)

Slide Series
(Simon Fraser University) —
30 slides on air and water pollution, with descriptive material and teaching aids. Purchase price and detailed information available from:
Universal Education and Visual Arts
2450 Victoria Park Avenue
Scarborough, Ontario.
or
The Audio-Visual Department
Simon Fraser University
Burnaby 2, British Columbia.

Transparency Series
(Universal Education and Visual Arts) —
14 color transparencies on air pollution for use with overhead projector. Available for purchase only. Detailed information and cost price available from:
Universal Education and Visual Arts
2450 Victoria Park Avenue
Scarborough, Ontario.

Note: The information on this page is not intended to be a comprehensive listing, and represents only those materials that came to the attention of the *Orbit* staff as a result of a review of the Ontario Department of Energy and Resources publications.

Profile of a School
6

Profile of a School
6

Bellmore
Public
School

Profile of a School
6

Profile of a School
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Set among green fields in the Township of Binbrook near Hamilton, Bellmore Public School looks typical of many of the elementary schools that were built in the mid-fifties. Nevertheless, although it was not designed with the current living and learning styles in mind, it is doing a remarkably good job of adapting to the needs of its four hundred or so students.

A unit system was introduced from kindergarten to grade 3 in 1962 but was abandoned a year ago because it failed to allow for variations in the students' learning rates. This past year, the system used in the primary grades has been switched to continuous progress. The four classrooms are treated as a sort of 'open' area where the children do different things with different teachers. The day is divided into four blocks of time: reading, in which the language experience approach is used and children are grouped according to their ability and social maturity; arts, including physical education, painting, and music; mathematics, in which children are again grouped according to ability and social maturity; and interest groups, in which each child pursues a project of his own choosing or joins in some general project, such as preparing for a field trip. The five teachers who are responsible for this program meet four times a week to plan activities, and they have worked hard together to achieve success. Each feels responsible for the whole group — there is no sense of 'my' class. A special testimonial comes from one of the five who has been teaching for almost forty years. 'I was absolutely opposed to the whole scheme in the beginning,' she says, 'but now I've found the children learn just as well, if not better, and are all very much happier.'

At the grade 4 and 5 levels, the organization is still traditional, with self-contained classrooms and conventional programs of study. But this will not be so for much longer: next year, continuous progress will be introduced in grade 4, and the year after, in grade 5.

At the senior level, the system has recently changed from a traditional to a block rotary system based on language arts, environmental studies (science, geography, and history), arts, and mathematics. Each grade spends an hour and a half every day in each of the four study areas. This allows more scope in the integration of subject matter and more opportunity for individualized instruction. It also results in teachers and students being less pressed for time. On Friday afternoons, parents assist in the teaching of elective subjects, such as oil painting and auto mechanics.

Jim Macdonald, who has been principal of the school for the past seven years, has found that giving the children more freedom has resulted in fewer discipline problems and less truancy. He also believes that standards of work have improved, especially among the slower learners.